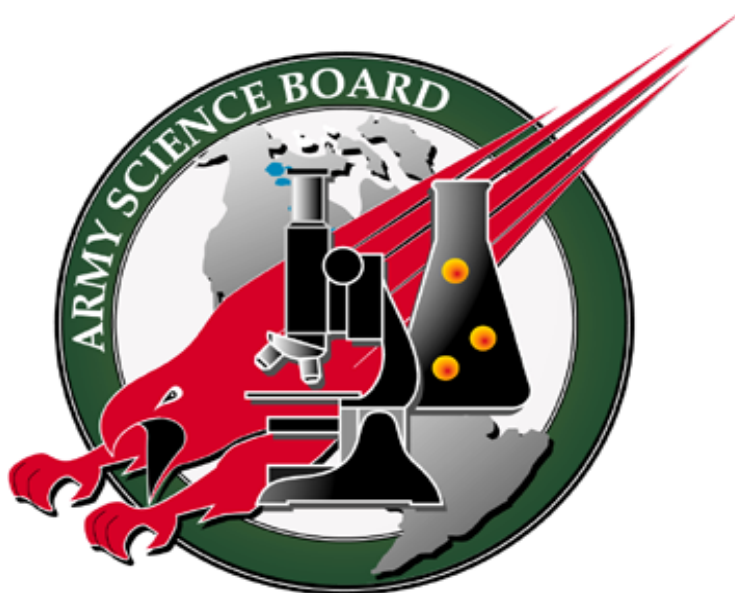


# **ARMY SCIENCE BOARD**

## **FY2006 SUMMER STUDY**

### **FINAL REPORT**



DEPARTMENT OF THE ARMY  
ASSISTANT SECRETARY OF THE ARMY  
(ACQUISITION, LOGISTICS AND TECHNOLOGY)  
WASHINGTON, D.C. 20310-0103

## **“Army Business Transformation – Next Steps”**

**November 2006**

**Distribution Statement:**

Approved for public release; distribution is unlimited.

### **DISCLAIMER**

**This report is the product of the Army Science Board (ASB). The ASB is an independent, objective advisory group to the Secretary of the Army (SA) and the Chief of Staff, Army (CSA). Statements, opinions, recommendations and/or conclusions contained in this report are those of the 2006 Summer Study Panel on "Army Business Transformation – Next Steps" and do not necessarily reflect the official position of the United States Army or the Department of Defense (DoD).**

### **CONFLICT OF INTEREST**

**Conflicts of interest did not become apparent as a result of the Panel's recommendations.**





# **Army Business Transformation – Next Steps**

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## PREFACE

The Army Science Board (ASB) was tasked to look at issues and approaches for enhancing and evolving the Army's Business Transformation initiatives to include specific consideration in the following areas: (1) Human Resource (HR) Management; (2) Weapon Systems, Real Property and Installation Lifecycle Management; (3) Material Supply and Service Management; and (4) Financial Management.

The 23 experts on the ASB study team were experienced in a variety of relevant disciplines and experienced in the functional areas addressed. The study team was organized into 4 panels: Human Resources Management; Lifecycle Management; Supply and Services Management and Financial Management.

As the ASB team started its work, it became clear that there was an extraordinary amount of transformational work being done under strategic direction from the Secretary of the Army and the Chief of Staff through the Deputy Undersecretary of the Army for Business Transformation (DUSA-BT) to include the lean six-sigma/continuous improvement process; organizational analysis and design process; "situational awareness" and the Review of Education and Training of Army Leaders (RETAL) Study<sup>1</sup>. These were seen as the key enterprise transformation variables – People and Knowledge.

During our initial plenary sessions and in consultation with the DUSA-BT, the study team reviewed these on-going initiatives and decided to focus their efforts on a set of complementary aspects of transformation not actively being considered at that point.

Similarly, in the area of Acquisition transformation, the Study Team followed and based its deliberation on two "expert" reports that emerged early in the work schedule: the 2005 Defense Science Board study on *Transformation: A Progress Assessment* and the January 2006 *Defense Acquisition Performance Assessment (DAPA)* Report.

The 2005 ASB Summer Study on Best Business Practices provided a fertile starting point. Many of the findings and recommendations can be traced back to that study. Upon review, many of these best practices ideas also proved to be on the "transformational" path. The study looked for "necessary next steps" not being actively worked by the Army staff, that would firmly and irreversibly cement transformation under the current Army leadership team.

The first five of the six major steps recommended in the Executive Summary were briefed to the Secretary of the Army by the Summer Study Co-Chairs.

The Study Team gratefully thank the DUSA-BT, ASA(FM&C) and the Army Budget Office for their patient and responsive support.

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<sup>1</sup> The RETAL Study was conducted concurrently with the summer study. Its progress, along with that of the DIMHRS and NSPS programs, were monitored closely.







# Army Business Transformation Next Steps

ASB  
Summer Study  
2006



The Army Business Transformation Study was part of the Army Science Board 2006 Army Science Board Summer Study program.



## ABT Summer Study Agenda

- Terms of Reference, Organization & Membership
- What We Discovered & Concluded
- Recommendations Summary



This report from the Army Business Transformation (ABT) summer study is organized in three parts: how we saw our task and organized for it, what we discovered and concluded and what we recommended.



## ABT Summer Study Terms of Reference

- "...identify areas where alternative approaches and application of transforming practices and policy will benefit the U.S. Army..."
- Primary focus on near term, necessary actions
- Include/organize around the following Core Business Missions:
  - Human Resources Management
  - Lifecycle Management of Technology, Weapons System, Real Property & Installation
  - Materiel Supply & Service Management
  - Financial Management

**An EOH View of some "necessary next steps"**

Business Transformation

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The Army Science Board was tasked to look at issues and approaches for enhancing and evolving the Army's Business Transformation initiative to include specific consideration in the following areas: (1) Human Resource (HR) Management; (2) Weapons Systems, Real Property and Installation Lifecycle Management; (3) Material Supply and Service Management; and (4) Financial Management.

The clear focus was identifying near term, necessary actions to move the enterprise level, business transformational process forward as viewed from senior management and leadership level. The "near term" frame work was viewed as actions that could be realistically initiated within the next two years.



## ABT Panel Organization & Membership

**Dick Ladd -- Chair**

**Max Noah -- Vice Chair**

Staff Assistants: Monica Malia, Sarah Martin, Ursula Owens and Cadet Mike Staples

### **Human Resources Management**

**Jim Ralph -- Panel Co-Chair**

**Harry West-- Panel Co-Chair**

Bob Elton

Ron Krisak

Billie Miller

### **Management of Technology, Weapon Systems, Real Property & Installation**

**John Barnes -- Panel Chair**

Bob Donahue

Roger Harvey

Avon James

George Singley

Scott McCain -- SME

### **Materiel Supply & Service Management**

**Chuck Vehlow -- Panel Chair**

Gary Bishop

Harold Mabrey

Eric Peltz

### **Financial Management**

**Max Noah -- Panel Chair**

Frank Distasio

Harry West

Bob Young

Tom Marfiak

### **Red Team**

Seth Bonder

Bill Hancock

David Maddox

Tom Marfiak

**Business Transformation**

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The ASB team analyzing the tasks assigned were experienced in a wide variety of relevant disciplines and experienced in the functional area to be addressed. The 23 members were organized into four panels and a “Red Team”:

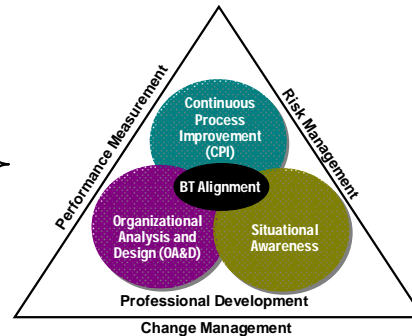
- Human Resources Management
- Lifecycle Management
- Supply and Services Management
- Financial Management

The Business Transformation study team conducted its work between October 2005 and July 2006 concurrent with regular ASB plenary meetings and augmented with team work meetings and conference calls.



## “Business Transformation”-- on the move Led and Managed by the DUSA-BT

- **Why do you do transformation?** - To increase efficiency, productivity and effectiveness
- **How do you achieve that?** - Through the restructuring of functional processes, activities, and organizations to:
  - Design and implement new processes
  - Eliminate redundant processes
  - Improve coordination among processes
  - Assure appropriate interactions within and among processes
  - Remove unnecessary activities
  - Consolidate processes and activities
  - Develop new operational policies/strategies
  - Remove inefficient organizational layers
  - Relocate functions
  - Delegate authorities
- This transformation will require a culture of continuous improvement, with professionals who are trained and motivated to operate in this culture, and development of metrics and processes to continually monitor performance of the enterprise



**DUSA – BT is well along on institutionalizing all of this  
Our TOR and review focused on 5 complementary issues**

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Business Transformation

As the ASB started its work, it became clear that there was an extraordinary amount of transformational work being done under strategic direction from the Secretary of the Army and the Chief of Staff through the Deputy Undersecretary of the Army for Business Transformation (DUSA-BT). This work was found to be well based on contemporary academic work and literature in organizational transformation/adaptability or change management

The DUSA-BT organized his process orientation and actions using the “triangular graphic” shown above to illustrate the highly interactive nature of several key transformational tools:

- Lean six-sigma/ continuous improvement process
- Organizational analysis and design process
- “Situational Awareness” process

As a separate initiative, the Army was concurrently working on the Review of Education and Training of Army Leaders (RETAL) Study. The Department of Defense had two separate, “expert” reports being produced on Acquisition transformation.

During our initial plenary sessions and in consultation with the DUSA-BT, the study team reviewed these on-going initiatives and decided to focus our efforts (on a none interference basis) on a set of complementary aspects of transformation not actively being considered at that point.



## ... and we saw these....Major Business Transformational Needs & Opportunities

- **PEOPLE:** The Army responsibility for acquiring, educating, and developing all its people (civilian & military) is fragmented
- **KNOWLEDGE MANAGEMENT:** The Army lacks integrated, cross enterprise knowledge necessary to support and make rapid, accurate enterprise level decisions
- **INSTALLATIONS:** The Army plans to replicate infrastructure for BRAC transferred organizations without considering possible transformational realignments to consolidate and lean them
- **SUSTAIN:** There are multiple sustainment processes that need to be transformed to provide more agile, elastic and cost effective performance:
  - Purchasing and Supply Chain Management
  - Performance Based Logistics
  - Surge Capacity
  - Leverage Purchasing Power
- **EQUIP:** The Army has equipment program instability, delays in fielding, and increased costs

**Solutions are both possible and necessary for BT**

Business Transformation

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In considering Business Transformation – the process – the Study Team, like the DUSA-BT, looked at enterprise business processes, their readiness for the 21st century environment and how to improve the business process. We selected 5 opportunity areas which aligned with major enterprise processes or Title X management functions.

These 5 areas and the “transforming need” (the problem statement or objective for the process owner) are listed here. It is interesting to note that, while meeting these needs are necessary for a “transformed” enterprise, the solutions to these needs are, more often than not, significant attributes of the highly successful, flexible and adaptive enterprises noted in contemporary literature. The Study believes that solutions are both possible and necessary for Army Business Transformation.

Each of these 5 areas will be addressed in turn.



## PEOPLE: Human Capital Development

- **Issue:** The Army responsibility for acquiring, educating and developing all its people civilian and military is fragmented
- **Findings:**
  - HR costs have been increasing as a percent of the Army Budget

Army FY 06 Human Capital Costs				
MIL	CIV	BA 3	Contractor	HR Total
\$41.4B	\$15.6B	\$3.5B	\$20.0B	\$80.5B

Source: The Army Budget

**Army's biggest  
single cost  
driver**

The first of the five opportunity areas is “People”.

There are two very dominating facts why “People” is first and could almost be the only issue in transformation:

-- KNOWLEDGEABLE PEOPLE are the MOST IMPORTANT TRANSFORMING FACTOR – they are the “transformers”

-- People (Human Capital) are and will be the Army’s biggest single cost and it is increasing as a percent of the Army budget. Depending on how ones counts, people costs are between 60% to 80% of Army budget dollars.

The Army’s on-going Review of Education and Training for Army Leaders (RETAL) Study is an explicit reflection of these two points. It is the one thing that the Army must get right if it is to transform itself as an enterprise.



## PEOPLE: Human Capital Development

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Source: The Army Budget

- Navy & Air Force reducing end strength to reduce their human capital cost
- Army does not have a Human Capital Development strategy or capability
- The principles of NSPS and RETAL are central to Civilian Human Capital Development and transformation
- Army Planned BRAC moves to Fort Knox:
  - HRC Hoffman
  - Accessions Command
  - Recruiting Command
- Civilian personnel management functions associated with BRAC directed moves, and all other civilian personnel management functions should also move to Fort Knox
- Integration can save at least 5% to 15% of the HR operating costs
- EOH C<sup>2</sup> HR Center of Excellence study is considering alternative designs for HR
- Ways to reverse growth trend could be 2007 ASB study topic

Recognizing the high cost of people, the Navy and Air Force are reducing strength to reduce human capital costs, while the Army needs to develop a Human Capital Development strategy and capability to execute it.

Human Resource Management is a DoD policy goal. DoD is working on establishing a new National Security Personnel System (NSPS) to better align its civilian personnel program with the current market place.

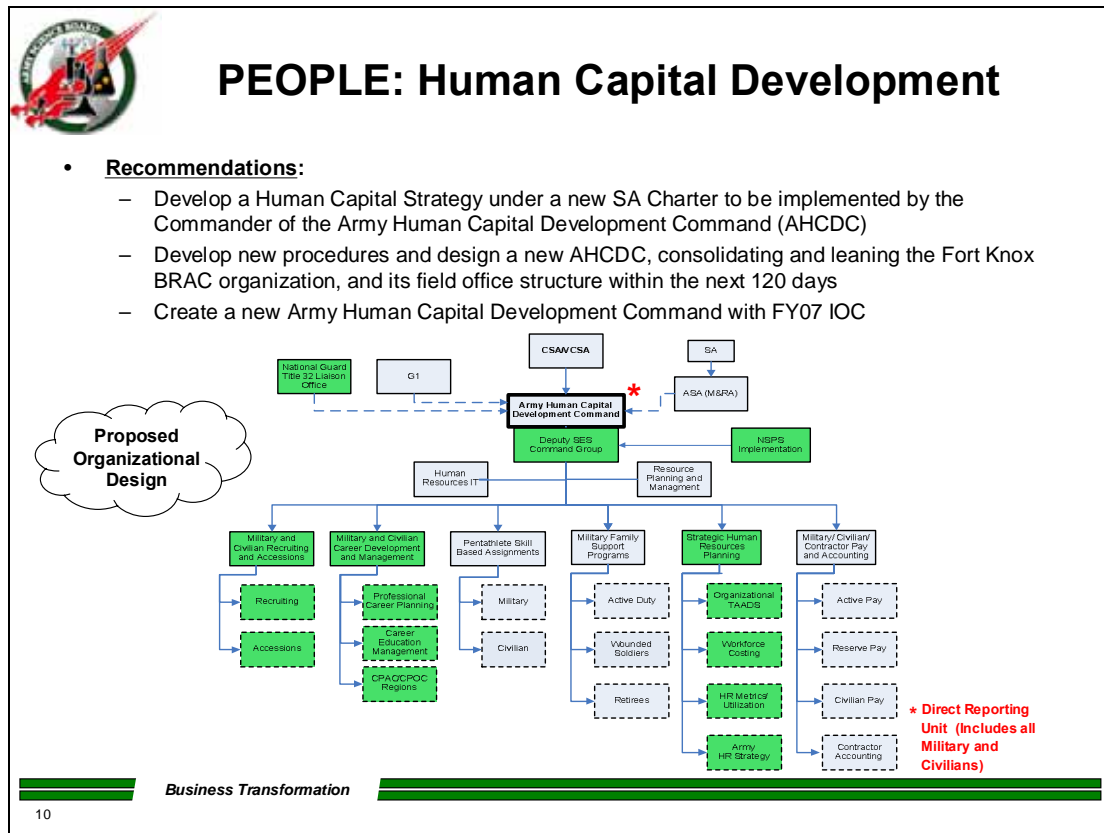
The recent BRAC is bringing much of the uniformed human resource processes together at Fort Knox where organization redesign and integration can reduce related operating costs. The design of a new HR Command is being worked quietly on the Army staff as the study is completed.

At the same time, civilian personnel functions are converging on Ft. Belvoir with a number of regional offices remaining.

RETAL's enterprise level view of developing uniformed and civilian personnel for the entire Army enterprise strongly suggests that a single, combined HR function should be established to integrate military and civilian HR life cycle management. The human resource functions and management skills needed are the same. The enterprise level educational goals and objectives closely align. In fact, the only reason one would not



want to do this is to preserve two separate “stove pipes” (military and civilian personnel assignments and administration).



The study recommends establishment of a single HR command, which we label the Army Human Capital Development Command.

The Command might look like this.

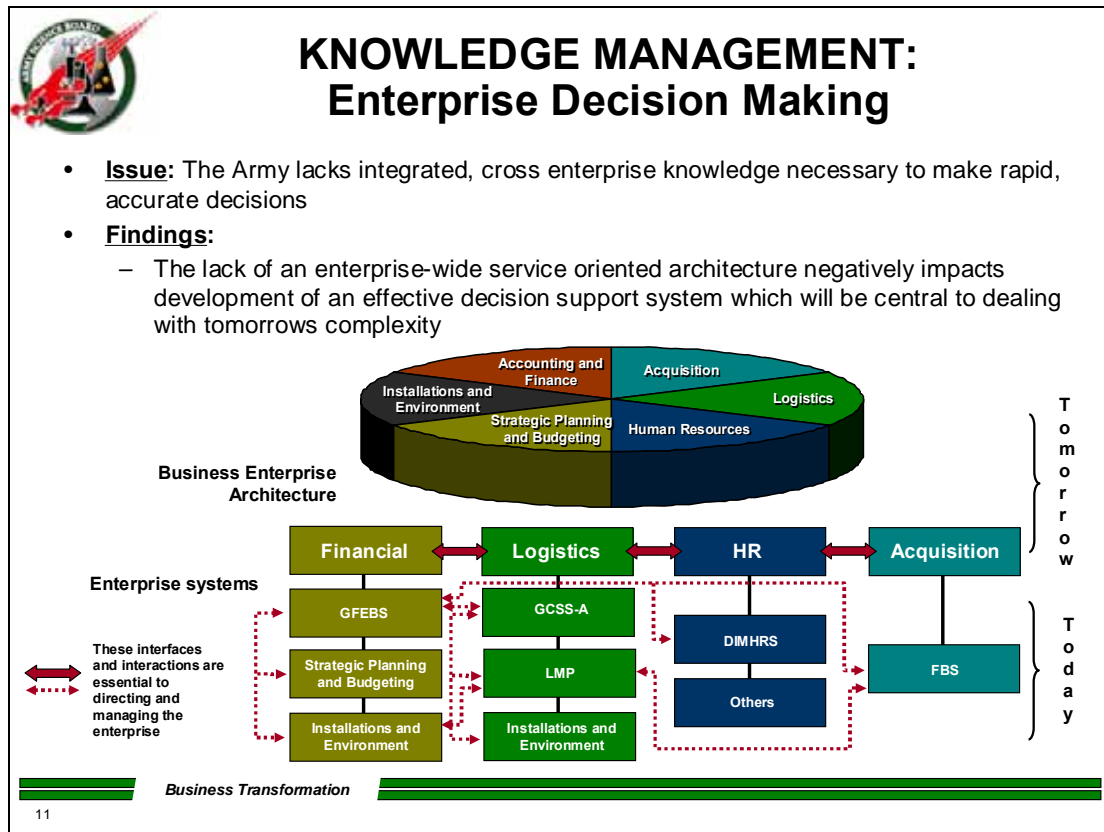
A four star command (so proposed because of the large budget share for HR) reporting directly through the VCSA to the CSA and SA (similar to the Army Material Command). The AHCDC will manage all Human Resources of the Army including Active, Reserve Component, National Guard, Civilians and contractors. This command will be developed as directed by a SA Charter (recommended herein) issued within the next 60 days. IOC will be FY 07.

The green blocks are proposed new, integrating functions common to civilian and uniformed personnel:

- A civilian Deputy Commander with a direct reporting office for NSPS implementation;
- A National Guard (Title 32) Liaison Office
- A single military/civilian accessions operation

-- A single military/civilian management and development operation based on the RETAL and subsequent studies

-- A single Strategic Human Resource Planning Office to work within the Army's requirement process (organizational and equipment) to insure and foster more efficient and effective use of personnel.



The second of the 5 five opportunity areas is “Knowledge Management”.


As in the war-fighting side of the Army, business enterprise responsiveness and adaptability is insured by a world class work force supported by timely and accurate information or knowledge -- supported by timely situational awareness.

The Army has hundreds of multi-purpose and single purpose, unique software packages managed through its portfolio management process. These automated systems work and are supporting the Army during time of war.

But much enterprise level information still is obtained by data calls to the field and manual integration. These functional stove pipe applications date back nearly 25 years and a vigorously maintained out of necessity.

This slide shows the 4 major business functional areas or portfolios (Finance, Logistics, Human Resources and Acquisition) which encompass the DoD Business Enterprise Architecture. Under each are the new enterprise software systems or suites being



developed for fielding over the next 5 years. These are all very much state of the art functional applications. Yet, they are still “stove piped”, horizontally integrated data structures which must be “interfaced” horizontally to share data.



## KNOWLEDGE MANAGEMENT: Enterprise Decision Making & GFEBS

- **Findings (Cont.):**
  - A web-based General Fund Enterprise Business System (GFEBS) provides a data structure capable of supporting the resource management process (analyzing, costing, comparing and funds management) and other Enterprise Decision support tools with accurate, real-time data.
  - Some refinements in Army Fiscal Data Code structures are needed to align expenditures and outcome/output data at the transaction level.
    - For example, using new “point accounts” in the unused portion of the code to tell type of unit and its identification

Accurate, valid data is critical for good quality decision making and accounting

*Business Transformation*

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A centerpiece of functional system development lies in the Modernization of the financial management portfolio being done with the General Fund Enterprise Business System (GFEBS). GFEBS is being developed using COTS Enterprise Resource Planning (ERP) software for the purpose of providing a verifiable financial statement and other standard integrated financial management reports. Based on capturing and recording expenditure data at the source in near real-time, GFEBS will provide a capability for analysis and providing financial data for:

General Ledger Accounting – the primary purpose

Cost Analysis – a critical use

Enterprise Management Tool – financial data for Enterprise decision making

This will require increased accuracy and precision of data capture which is well within the state of the art of modern IT processes when the data structures are designed to provided the requisite precision. The Army Fiscal Codes will need to be refined to create the inherent value available in GFEBS and to ensure that the functional applications can be cross walked from a resourcing point of view.



## KNOWLEDGE MANAGEMENT: Enterprise Decision Making

- **Findings (Cont.):**

- Functional stovepipes' data must move towards a more open, horizontally integrated ("converged") data architecture
- Lack of an enterprise-wide decision support system precludes cross functional decisions
- The processes to transform the Installation Single DOIM and the implementation of Area Processing Centers (APC) are asynchronous and will not exploit the inherent attributes of transformation
- Software development funding instability forcing schedule slippages

- **Recommendations:**

- Develop an enterprise-wide decision support system that will support more timely and better informed, enterprise level decisions
- Fund the APC implementation and the Single DOIM transformation at the level necessary to synchronize the efforts, maximize the ROI and minimize organizational disruption
- Evaluate IT software systems currently in functional development for their ability to support enterprise level activity and decisions, fix systems with enterprise potential and kill the rest
- Refine Army Fiscal Data code structure to capture unit/point of expenditure data

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More horizontally integrated ("converged") data structures are being used for large Enterprise Resource Planning (ERP) systems in the more advanced, transformational private sector IT applications needed for "tomorrow". The Army needs to get there too but needs to complete its current IT modernizations as a stepping stone to convergence. This will require assured funding and portfolio manager's protection of these investment funds.

Adding to this challenge is a lack of an enterprise-wide decision support system that could span cross-functional data systems.

Additionally, current processes to transform the Installation Single DOIM and the implementation of Area Processing Centers (APC) are asynchronous and will not exploit the inherent attributes of transformation.

The Study recommends that an enterprise-wide decision support system be developed and insure that current IT software systems currently in development directly interface with the decision support system. Further, that the APC implementation and the Single DOIM transformation funding be synchronized to maximize ROI and minimize organization disruption.



## INSTALLATIONS: BRAC Opportunities

- **Issue:** The Army plans to move non-transformed organizations, people and things from current bases to the BRAC specified locations with an associated replication of facilities at the new locations to support them
- **Findings:**
  - There is a \$16B estimated BRAC construction requirement (MILCON) associated with the movement of existing organizations to new locations
    - One example of these BRAC movements, is the move of several separate HR related activities to Ft Knox
      - HRC Hoffman, Accessions Command, Recruiting Command
      - If these commands were consolidated and transformed as part of a new Human Capital Development Command then the ultimate facility footprint could be considerably reduced
- **Recommendations:**
  - Design the end state organizations associated with BRAC directed moves by examining new processes, consolidation and “leaning” prior to executing BRAC relocation actions to ensure that only the required structure is moved and only the MILCON needed for the new organization is executed

The third of the five opportunity areas is “Installations”.

During the course of the study, it appeared that BRAC directed moves were being planned and programmed without fully considering any consolidating and cost reducing reorganizations that reduce military construction needs and costs.

The study recommends that appropriate “leaning” be made before final construction needs are finalized and executed.



## SUSTAIN: Supply Chain Management

- **Issue:** The Army's current reactive, transactional repair parts procurement strategy is inflating wholesale inventory requirements, increasing costs and restricting surge capability
- **Findings:**
  - Current PSM practices produce large order quantities and long lead times

Organization	Average Admin Lead Time (months)	Average Product Lead Time (months)	Average Lead Time (months)	Order Quantity Months
<b>AMCOM</b>				
- Aviation	4.0	13.3	17.3	8.1
- Missiles	4.7	8.3	13.0	25.2
<b>TACOM</b>				
- Soldier Biological & Chemical (SBC)	1.4	6.7	8.1	4.2
- Tank-automotive	1.8	6.3	8.1	5.2
- Armaments	2.7	8.4	11.1	4.7
<b>CECOM</b>	3.4	9.1	12.5	

2005 AMC Order Quantities and Lead Times

The fourth of the five opportunity areas is “Sustainment”.

Within sustainment, the study selected 4 focus areas after the initial plenary session. These are: (1) Purchasing and Supply Chain Management; (2) Performance Based Logistics; (3) Surge Capacity; and (4) Leveraged Purchasing Power.

In a general sense, all of these areas are aspects of supply chain management which is a very active area in business transformation. While commercial businesses have the latitude to forming long term, sole-source relationships with their supply bases, the Army has different stewardship responsibilities as required by Federal Acquisition Regulations. The purchase of goods and services is a huge expenditure (second only to personnel costs), especially during war time or other times of high operational tempo. In FY05, 53% of the Army’s 167.3B budget and supplemental funding (\$88B) went for goods and services, of which \$35B went for civilian pay and contractor services.

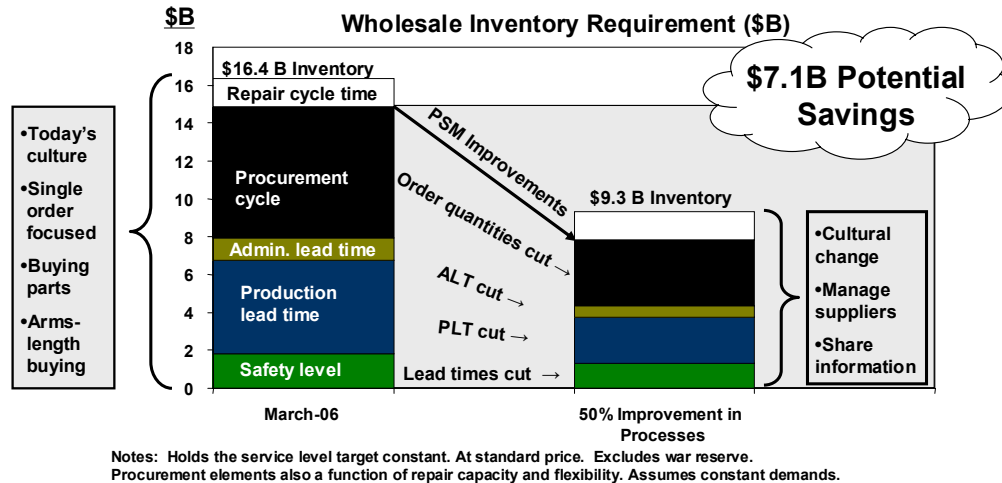
The chart above shows the relatively long lead times and large order quantities for repair parts purchases. This makes it harder for parts managers to adjust parts levels to meet new operational conditions. This also hides real demands from the supply base and produces large on-hand inventory when orders come in. At the supplier end, infrequent, unpredictable orders, as opposed to smoother order, contribute to supply base robustness problems. In today’s highly competitive environment, suppliers cannot afford to maintain capacity when no orders are in sight.



## SUSTAIN: Supply Chain Management

- **Findings (Cont.):**

- Revised Purchasing and Supply Chain Management (PSM) can improve the Procurement Cycle, Contracting Practices, and Supplier Performance



This graphic looks at wholesale inventory requirements at cost to meet the Army's service level goal of 85% stock availability given current demand level. The left column reflects the lead times, order quantities of the current practices.

In the last decades, a number of leading firms have transformed their procurement and supply management practices to focus on developing proactive supply strategies, strategically managing suppliers and tightly integrating and sharing information with them.

These practices have led to improved quality, responsiveness, costs and lower inventory costs. These practices offer opportunities to reduce Army lead times and order quantities, which can lead to dramatic inventory reductions while keeping service levels up.

The inventory effects or reductions from 50% process improvements (more frequent orders of smaller quantities) is difficult but within the range of possibility over several years. This estimated result – potential savings over time of \$7.1B - is shown in the right column.



## SUSTAIN: Supply Chain Management


- **Recommendations:**

- Implement Purchasing and Supply Chain Management changes to improve support to Soldiers and reduce inventory costs:
  - Upgrade and change the focus of the workforce from placing individual orders to developing and managing suppliers
  - Develop written, proactive supply strategies
  - Develop enterprise-wide, collaborative relationships with suppliers including long-term ordering agreements containing surge provisions
  - Provide a smoother flow of orders to suppliers
  - Continually provide real-time consumption and surge planning data to suppliers for forecasting and production planning
  - Employ output and process metric scorecards to provide performance feedback to AMC on supply chain managers and suppliers

The study offers the above set of fairly specific action steps toward implementing more contemporary or transforming supply chain management practices.

In addition to reducing inventory requirements and levels by working to establish and sustain warm production lines or relationship, firms with the best supply chain practices report lower cost growth compared to relevant producer price index (PPI).





## SUSTAIN: Performance Based Logistics

- **Issue:**
  - Army has been slow to take full advantage of component-level PBL contracts within a supply chain management operation
- **Findings:**
  - There is a range of public-private/PBL partnerships or contractor relationships

Traditional Contracted Support

- Buy only parts
- Single order focus
- Support through IDIQ and limited contracts
- Frequent expedited orders
- Arms-length relationship

Subsystem or Component PBL

- Service retains support integration responsibility
- Longer-term incentive contracts
- Industry manages supply chain and reliability engineering
- Manage suppliers
- Performance Metrics
- Share information

Total Systems Support Responsibility (TSSR)

- Cultural change
- Industry becomes the integrator
- Longer-term incentive contracts
- Manage suppliers including DLA
- Readiness and performance metrics
- Share information

– USN PBLs focused at system/subsystem level, outsourcing supply chain management and reliability engineering, with success

– Component/subsystem level PBL widely used commercially

– Most component-level DoD experience with PBL is in aircraft and electronics, but automotive industry has experience

Business Transformation

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The second sustainment focus area is Performance Based Logistics.

Performance Based Logistics (PBL) is a DoD policy objective. There is a range of ways in which PBL can be implemented: from traditional, arm's length IDIQ parts ordering arrangements; to a more joint process management on components with the Service controlling integration and industry doing reliability engineering; to industry assuming "total system support responsibility" with system performance incentives and Service contract management.

The number of Army PBL programs are currently low, but the number will double to 88 in next few years with only a few secondary items or component level programs. Recent ASA(AL&T) guidance encourages PBL for secondary items.



## SUSTAIN: Performance Based Logistics

- **Recommendations:**
  - Pilot component level PBL for Army systems that encompass supply chain management and reliability engineering at each LCMC
    - Use fixed price contracts with incentives for sharing cost savings based on component cost reductions and reliability improvements
    - In conjunction with vendor-managed and owned inventory, contract for performance using a wholesale supply metric such as, “facing fill”- i.e., in stock at the right location
    - Use legacy components to provide a cost and performance baseline from which to establish performance goals and to assess the value of PBL

Although OSD and the Army support the PBL concept and have many programs in the systems, we recommend that Army Materiel Command begin pilot programs in AMCOM/CECOM/TACOM Life Cycle Management Commands on legacy components and assess the PBL value at the secondary item level. The Army can build on the lessons learned and take an aggressive approach by building to a type of system approach like the Air Force C-17, with its incentivized life cycle cost reductions and readiness improvements.

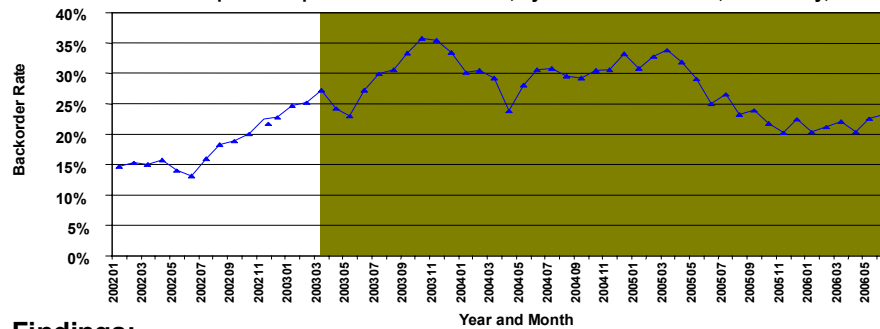
The difference between this recommendation and what the Army is doing with secondary items at present, is that this recommendation would move the focus up the supply chain to give the contractor responsibility for more of or the entire supply chain for selected secondary items. Current PBLs function on only a portion of a supply chain such as support to the depot repair line thereby limiting the real impact that the PBL can have on system operational improvements and related cost savings.



## SUSTAIN: Surge Capacity

- **Issue:** Backorder rates reached 35% during OIF, driving about 50% increase in equipment downtime, and took until early 2006 to recover

Backorder rate for class IX requisitions passed to national level, by month of document, Total Army, Source: CTASC



- **Findings:**
  - Obligation authority for a wartime surge was approved more than half a year too late
  - Army long term contracts reportedly did not include surge provisions
  - War reserve secondary item requirement forecast had major errors
  - Less than 10% of war reserve secondary item requirement are funded

The third sustainment focus area is surge capacity.

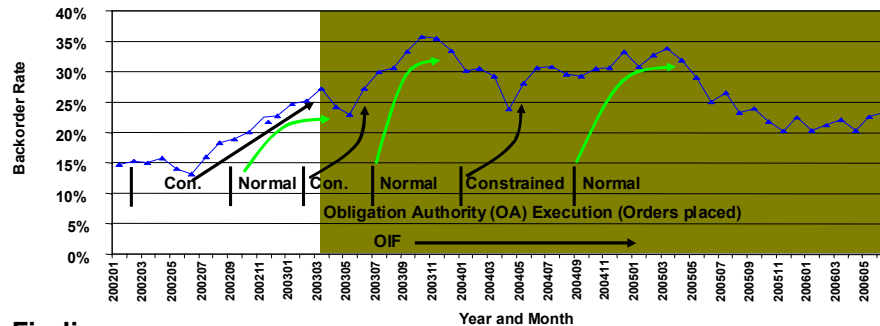
This graph shows the Army managed repair part backorder rate experience by units in the field as the Army prepared for and executed OIF. It peaked at 35% and stayed relatively high for an extended period. Initially the high backorder rates were due to poor war reserve readiness – a result of very little funding compounded by inaccuracies in requirements. Approval for the obligation authority to initiate a repair parts production surge did not arrive until 2003, too late in the context of lead times seen earlier. Despite the poor war reserve posture heading into OIF, additional obligation authority to support demands above the pre-war baseline was not approved until June, July and August of 2003, producing associated deliveries primarily in 2004.



## SUSTAIN: Surge Capacity

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These contingency specific repair parts resourcing problems were on top of repair parts under-funding in FY02, which led to an increasing backorder rate leading into the start of the combat operations in Iraq. Additionally, the backorder problem extended into FY05, because needed AMC obligation authority was again delayed in FY04 and long-term contracts were not well designed to handle surge requirements. Ultimately, FY04 was fully funded but a delay in releasing OA still lead to higher back orders than planned. Additionally, it has been reported that many long term contracts were “bought” out during OIF as the result of not having surge provisions. In other words, they hit their quantity maximums triggering the need for renegotiations for new contracts.

The arrows on this chart show the effect of funding-driven start and stop cycles on backorder rate. AMC’s automated inventory system indicates when to order. Whenever they have to hold orders due to constrained obligation authority, the backorder rate will start climbing above the target level a lead-time later. Hence a few months after each period of constrained funding, the backorder rate starts climbing as the effect first shows up with the shortest lead-time parts. Problems with long lead-time parts do not show up for as much as two years later, resulting in the extended climb in the backorder rate. When funding allows orders to be placed as indicated by the inventory system automation, recovery begins a few months later. Again, for recovery to be complete takes as long as the parts with the longest lead-times.



## SUSTAIN: Surge Capacity

- **Recommendations:**

- Establish a policy to provide Obligation Authority as part of pre-war actions to build up critical material stocks
- Include surge provisions in long term supplier contracts
- Improve war reserve secondary item posture
  - Increase funding priority for long-lead readiness drivers
  - Use the OIF inventory drawdown to help fill war reserve
  - Periodically conduct independent validation of war reserve requirements for confidence building

The Army did and does plan to rely on war reserve stocks of repair parts, but going into OIF, these stocks provided little buffer to delay the need for a contingency production surge. Repair part war reserve sustainment stocks suffered from three problems going into OIF: requirement determination quality; policy limited part quantities to the expected demand over the first 5 months of a contingency; and fiscal constraints limited parts stockage to less than 10 percent of the requirement before the start of OIF. When customer demand picked up, AMC's supply management execution system was generating inventory replenishment orders at a pace well beyond approved requirements and the approved budget due to global customer demands and the pre-OIF inventory position. Thus, AMC ran out of working capital obligation authority for orders to external suppliers and its maintenance depots.

The study made the above recommendations based on this OIF experience.



## SUSTAIN: Leverage Army Purchasing Power

- **Issue:** Current “federated” set of installations not aggressively procuring common supplies and services centrally or regionally
- **Findings:**
  - Many buyers, many contractors, many contracts, similar purchases resulting in high purchasing costs and reduced leverage

	Federal Supply Class (FSC)/ Product Service Code (PSC)	Purchasing Offices	Contractors	Contracts	\$ M
1	Custodial - Janitorial Services	178	1,226	2,571	215
2	Office Furniture	193	982	2,381	160
3	ADP Software	191	1,438	2,304	339
4	ADP Support Equip	163	951	1,806	211
5	ADPE System Configuration	131	661	1,308	390
6	Guard Services	69	213	253	556
7	Food Services	142	505	986	316
8	Trash/Garbage Collection Services	126	982	534	281
9	Facilities Operations Support Services	124	463	514	675

However, significant targets for savings through consolidated contracting; e.g., Consolidation of Army Requirements and Contracts for Microsoft Software Resulted in 49% Cost Avoidance (\$71.4M)

Business Transformation

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The fourth sustainment focus area is leveraged purchasing power.

Army installations have many contracts, many buyers or purchasing offices, and many contractors for similar purchases. These purchases are frequently done across multiple installations, and as such, fail to take advantage of the leveraged buying opportunities that an organization the size of the Army has to offer. This chart is a sample from FY05.

There are wide ranges in the sizes of these contracts. Yet each costs about the same to administer and manage. Consolidation offers the chance to reduce administrative costs. More importantly, the advantage of larger quantities per contract can be illustrated through ADP software purchases. The Army consolidated requirements and contracts for Microsoft software and achieved a 49% cost avoidance worth \$71.4M.



## SUSTAIN: Leverage Army Purchasing Power

- **Findings (Cont.):**

- Installation utility and energy acquisition is executed locally with no strategic forecasting, demand shaping/management or acquisition processes in place to control cost growth

	Federal Supply Class (FSC)/ Product Service Code (PSC)	Purchasing Offices	Contractors	Contracts	\$ M
1	Electric Services	94	225	370	515
2	Other Utilities	57	85	129	161
3	Gas Services	59	106	137	98
4	Water Services	73	143	188	84
5	Telephone and/or Communications Services	139	330	587	67
6	Waste Treatment & Storage	90	161	193	17

- **Recommendations:** Implement a centralized (enterprise wide or regional as feasible) shared supply and services process to develop and execute centralized energy, supply and service contracts for local execution at Army Installations

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Business Transformation

The picture is similar for energy and utilities.

As energy prices increase in the future and the demand/need for more and better telecommunications/IT services increase, Army funding needs are expected to increase faster than inflation. Consequently, purchases of installation utilities and energy is another area where centralized purchasing and management of such commodities could and should be highly leveraged.

Such acquisition and management, while very technical at the national market level, can be handled through centrally negotiated contracts for local execution. At that level, tailoring contracts to regional power sources and demands is possible – even enhanced if contracting were done joint with other Services as advantageous. Special attention could be given to shaping demand by careful use of and scheduled testing of backup power sources.

The study recommends establishing a centralized, shared supply and services acquisition process for “commodities” (or near-commodities) to exploit the Army’s purchasing power in a manner to support local execution.



## Equipping the Force

- **Issue:** The Army has equipment program instability, delays in fielding, and increased costs which will continue to impede rapid fielding of needed equipment
- **Findings:**
  - Causal factors:
    - Changes made in requirements
    - Programming changes regarding quantities, schedules and dollars
    - Entering SDD relying on immature/unproven technologies, subsystems and/or components
    - Failing to conduct Developmental Test (DT) and Operational Test (OT) early in the process
  - Solving these problems has been an objective of multiple past studies, committees, and blue ribbon panels

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Business Transformation

The fifth, and last, of the five opportunity areas is “Equip” or equipping the force.

The Business Transformation (BT) study started its work and deliberations based on two “expert” reports that became available early in our work schedule: the 2005 Defense Science Board study on *Transformation: A Progress Assessment* and the January 2006 *Defense Acquisition Performance Assessment (DAPA) Report*.

The BT study’s view (which agrees with the two report above and many others) is that Army modernization programs suffer from program instability, delays in fielding and increased costs which will continue to impede rapid fielding of needed equipment. There are numerous causes:


-- Requirements often change throughout the development phase. The reason for these changes vary from program to program, but these changes significantly impact acquisition programs. Programs also suffer from quantity adjustments, and changes in schedules and funding.

-- Too many programs enter SDD phase without sufficient testing and review processes. Delays become inevitable as subsystems and/ or component technologies are determined to be immature and in need of further development before pre-production steps can be taken.

-- Failure to conduct Development (DT) and Operational Test (OT) early in the process results in immature or unproven technologies and systems moving to subsequent phases.



Finally, these problem are not new. Numerous studies, committees and blue ribbon panels have looked at these challenges before, yielding many common conclusions and recommendations which have fielded to yield any substantive changes or improvement to the process.



## **DAPA's "Time-Defined Acquisition" address several problems**

- What is "Time-Defined Acquisition"?
  - An acquisition concept that requires deliver of useful capability within a constrained period of time, no more than 6 years from Milestone A, rather than 100 percent performance without regard to how long it takes
  - An acquisition concept that makes time a Key Performance Parameter
  - An acquisition concept that formalizes a risk-based source selection process using affordability determinations based upon most probable cost estimates agreed upon by industry and government.

**Time matters -- Time costs**

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**Business Transformation**

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The DAPA report described a preferred acquisition concept or strategy "Time-Defined Acquisition" which included as a major element "Time Defined Development".

The Army is already doing a lot of Time-Defined Acquisition: the spirals out of FCS to current force equipment; the Joint Cargo Aircraft (JCA); the Light Utility Helicopter (LUH); the Joint Network Node (JNN) program; and counter-IED programs to name a few – substantially COTS with limited SDD where needed.



## Equipping: Time Defined Acquisition

- **Recommendations:**
  - Implement Time-Defined Acquisition [TDA]...***because time matters***
    - Freeze system requirements at SDD through LRIP
    - Only start SDD with fully developed and tested [preferable produce/fielded] subsystems, components & technologies
    - Plan and execute SDD to be systems integration and/or production engineering within a specified period of time
  - Involve testers early in SDD. DT/OT should decide what is ready for production and what to defer to Product/Block Improvement
    - Operational testing = Does warfighter want to buy it?
    - Development testing = Does it meet contract requirements?
  - Increase advanced development prototyping [6.4] to produce developed, tested subsystems and components

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Business Transformation

There are a number of Army policies that should be emplaced to support Time-Defined Acquisition.

Time-Defined Development: First, policies should be established that freeze system requirements at SDD through LRIP. This avoid requirements 'creep' and the programmatic and cost issues that result.

Second, SDD should begin only when fully developed and tested subsystems, components and technologies are available. SDD should be used to complete system integration work and/or production engineering.


Third, Advanced development prototyping activities should be maximized to produce developed, tested subsystem and components. Advanced technology development (6.3) should be conducted through ACTDs and ATDs.

Finally, basic (6.1) and applied research (6.2) should be focused exclusively on Service-unique knowledge and technology needs. Turn to industry and universities for other requirements.

SDD DT/OT: Policies should be emplaced that will focus SDD DT/OT on deciding what aspects of a program are ready for production and which pieces should be addressed in subsequent Product/Block improvement planning. OT should determine whether

warfighters want to buy a particular technology or capability. DT should determine whether the developer have met contractual requirements.

Prototyping: Increase advanced development prototyping (6.4) to produce developed, tested subsystems and components.



## Equipping: Preserving Innovation

- **Recommendations (cont.):**
  - Realign and resource Advanced Systems and Concepts Offices at ARL, AMCOM, TACOM & CECOM
    - Innovative concepts preliminary design & analysis
    - Concept managers = pre-PMs
    - Technology planning & prioritization
    - Collaboration with TRADOC ARCIC, Battle Labs and JFCOM
  - Use basic [6.1] and applied research [6.2] for Service-unique knowledge and technology needs only. Leverage industry and universities for the rest.
  - Focus advanced technology development [6.3] on ACTDs and ATDs

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Business Transformation


Policy Changes (cont):

Advanced Systems and Concepts Office: A Central part of our recommendation is the need to establish and resource focal points where innovation is fostered and preserved – a place where concepts and technology are combined and evaluated by teams that are tasked to the following:

- Identify and evaluate innovative concepts and establish preliminary design and analysis
- Conduct technology planning and prioritization
- Collaborate with TRADOC ARCIC, Battle Labs and JFCOM

In this construct, Concept Managers would serve as pre-Program Managers and focus their attention on those steps that must be completed before programs move to production.

Policies should be established to use basic (6.1) and applied research (6.2) funding to develop Service-unique knowledge and technologies. Industry and university input would be used to develop all other requirements. This policy should also establish a focus of advanced technology development (6.3) resources for ACTDs and ATD activities.



## Recommendations Summary

- Establish a Human Capital Development Command – ASA(M&RA)
- Develop an enterprise-wide decision support system – DUSA(BT)
- Consolidate and lean BRAC-identified organizations prior to moving – ASA(I&E)
- Supply Chain Improvements
  - Implement Purchasing and Supply Chain Management and major component PBLs – ASA(ALT)
  - Establish a policy to obtain Pre-war Obligation Authority, include surge provisions in supply contracts and resource war reserve-- ASA(FM&C)/ASA(ALT)
  - Implement a shared services contract process for goods and services to provide price advantages for local ordering – ASA(I&E)/ASA(ALT)
- Establish a team of subject matter experts to develop a Time Defined Acquisition process for the Army – ASA(ALT)
- Establish financial management policy, data structures and analytic capabilities to leverage GFEBS for support of the PPBES and an Enterprise-wide decision support tools -- ASA(FM&C)

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Business Transformation

The Business Transformation Summer Study makes a number of recommendations which it feels will necessarily help transform the Army into a more adaptive, flexible, responsive and cost effective enterprise. They are summarized above along with envisioned action offices within the Department of the Army and the Army staff.

# **APPENDIX A**

## **TERMS OF REFERENCE**





**DEPARTMENT OF THE ARMY**  
**OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY**  
**ACQUISITION LOGISTICS AND TECHNOLOGY**  
**103 ARMY PENTAGON**  
**WASHINGTON DC 20310-0103**

15 March 2005

Dr. Frank Akers  
Chairman, Army Science Board  
2511 Jefferson Davis Highway  
Arlington, VA 22202

Dear Dr. Akers:

I request that the Army Science Board (ASB) conduct a study on "Enhancing and Evolving the Army through Business Transformation" (Army Business Transformation). The study should be guided by, but not necessarily limited by, the Terms of Reference (TOR) described below:

**Background:**

The Secretary of the Army has announced a Strategic Framework with associated Strategic Principles to produce a campaign-quality Army with joint and expeditionary capabilities. Incident to that strategy is "business transformation" to help free up resources for warfighting missions. This transformation includes establishing a "performance culture" – developing and empowering leader within a performance management systems; enterprise-wide use of Lean/Six Sigma methodology; outsourcing where it makes sense; wide application of advanced information technology and a rethinking of associated governance issues.

This study that will identify processes and functions where alternative approaches and application of different business practices and concepts would benefit the Army and allow Army assets to be realigned to meet strategic Army needs. Process areas for consideration include, but are not limited to, Human Resources Management; Weapons System, Real Property and Installation Lifecycle Management; Materiel Supply and Service Management; and Financial Management.

**Terms of Reference (TOR):** Consider the following in the conduct of the study:

All panels will:

- a. Identify Army processes where alternative approaches and concepts can be applied within a 2 year period to transform Army business processes and identify longer range program to be implemented beyond 2 years.
- b. Examine leverageable changes in other Service and Joint agency processes;
- c. Designate or develop "metrics" to gauge performance;

d. Recommend or otherwise identify appropriate organizational changes, ROM of resource savings, implementation costs plus internal and external regulatory/statutory considerations;

Human Resources Management: This panel will examine the proven processes for supporting a “performance culture” for Department of the Army civilian employees to include consideration of provisions of the new Department of Defense (DOD) National Security Personnel System (NSPS) and providing appropriate educational experiences. Similarly, we will examine proven Human Resources (HR) management processes for developing and empowering the Army “Pentathelte” Leader for the 21<sup>st</sup> century in close coordination with the Review of Education, Training and Assignment of Leaders RETAL Study. Finally, this panel will consider how legacy Total Army HR systems can be transformed and integrated for the performance culture, possibly into a “human capital” management process.

Weapon Systems, Real Property and Installation Lifecycle Management: This panel will examine revised equipment requirements and fleet management opportunities made possible by the Army Force Generation (ARFORGEN) model; and examine alternative processes/models for developing and/or managing the development of a portfolio of Army unique technology in coordination with the requirements developing process, given a robust Army science and technology program; and examine the business case for privatizing or otherwise transforming the functions of the single Director of Information Management.

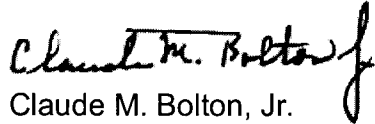
Material Supply and Service Management: Examine the impact of joint agency transformation plans on related Army supply and service processes for fulfilling and supporting equipment, supply and service requirements of the new ARFORGEN model. We will consider the impact of the ARFORGEN model on industrial/business mobilization requirements, alternative uses of available transportation sources and possible supply chain management opportunities to sustain warm industrial capacities to the vendor level.

Financial Management: This panel will examine the Assistant Secretary of the Army (Financial Management and Comptroller ASA(FM&C)/Army Budget Office organization, roles, functions, staffing, skill mixes and processes for enhancing enterprise-level financial management utilizing General Fund Enterprise Business System (GFEBS) based Enterprise Resource Planning (ERP) information.



Sponsor for this study is the Assistant Secretary of the Army for Financial Management and Comptroller. The final report should be provided by 15 August 2006. A draft report and briefing should be provided by 15 July 2006.

Sincerely,

A handwritten signature in black ink that reads "Claude M. Bolton, Jr." with a stylized flourish at the end.

Claude M. Bolton, Jr.  
Assistant Secretary of the Army  
(Acquisition, Logistics and Technology)



# **APPENDIX B**

## **PARTICIPANTS LIST**





# ABT Panel Organization & Membership

**Dick Ladd -- Chair**

**Max Noah – Vice Chair**

Staff Assistants: Monica Malia, Sarah Martin, Ursula Owens and Cadet Mike Staples

## ***Human Resources Management***

**Jim Ralph – Panel Co-Chair**

**Harry West– Panel Co-Chair**

Bob Elton

Ron Krisak

Billie Miller

## ***Life Cycle Management of Technology, Weapon Systems, Real Property & Installations***

**John Barnes – Panel Chair**

Bob Donahue

Roger Harvey

Avon James

George Singley

Scott McCain – SME

## ***Materiel Supply & Service Management***

**Chuck Vehlow – Panel Chair**

Gary Bishop

Harold Mabrey

Eric Peltz

## ***Financial Management***

**Max Noah – Panel Chair**

Frank Distasio

Harry West

Bob Young

Tom Marfiak

## ***Red Team***

Seth Bonder

Bill Hancock

David Maddox

Tom Marfiak



# **APPENDIX C**

## **ACRONYMS**





ABT	Army Business Transformation
ACTD	Advanced Concept Technology Demonstration
AHCD	Army Human Capital Development Command (proposed)
AMC	Army Materiel Command
AMCOM	Aviation and Missile Command
APC	Area Processing Centers
ARCIC	Army Capabilities Integration Center [TRADOC]
ARL	Army Research Laboratory
ASA(AL&T)	Assistant Secretary of the Army for Acquisition, Logistics and Technology
ASA(FM&C)	Assistant Secretary of the Army for Financial Management and Comptroller
ASA(I&E)	Assistant Secretary of the Army for Installations and the Environment
ASB	Army Science Board
ATD	Advanced Technology Demonstration
BRAC	Base Realignment and Closure
BT	Business Transformation
C2	Command and Control
CECOM	Communications – Electronics Command
COTS	Commercial off-the-Shelf
CPI	Continuous Process Improvement
CSA	Chief of Staff of the Army
DAPA	Defense Acquisition Performance Assessment
DIMHRS	Defense Integrated Military Human Resources System
DoD	Department of Defense
DOIM	Director of Information Management
DT	Development Testing
DUSA	Deputy Under Secretary of the Army
DUSA-BT	Deputy Under Secretary of the Army for Business Transformation
EOH	Executive Office of the Headquarters
ERP	Enterprise Resource Planning
FBS	Future Business System
FCS	Future Combat System
FSC	Federal Supply Class
GCSS-A	Global Combat Support System – Army
GFEB	General Fund Enterprise Business System
HR	Human Resources
HRC	Human Resources Command
IDIQ	Indefinite Delivery Indefinite Quantity
JCA	Joint Cargo Aircraft
JFCOM	Joint Forces Command
JNN	Joint Network Node
LMP	Logistics Modernization Program
LRIP	Low Rate Initial Production
MILCON	Military Construction
NSPS	National Security Personnel System

OA	Obligation Authority
OIF	Operation Iraqi Freedom
OT	Operational Testing
PBL	Performance Based Logistics
PPBES	Planning, Programming, Budgeting, and Execution System
PPI	Producer Price Index
PSC	Product Service Code
PSM	Procurement and Supply Management
RETAL	Review of Education and Training of Army Leaders
ROI	Return on Investment
SA	Secretary of the Army
SBC	Soldier Biological and Chemical
SDD	System Design and Development
TACOM	Tank – Automotive Command
TDA	Time-Defined Acquisition
TRADOC	Training and Doctrine Command
TSSR	Total Systems Support Responsibility
USN	US Navy
VCSA	Vice Chief of Staff of the Army